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NEW CALANOID COPEPODS OF *PONTELLA* DANA AND *LABIDOCERA* LUBBOCK WITH NOTES ON THE DISTRIBUTION OF THE GENERA IN THE GULF OF MEXICO

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Two previously undescribed species of *Pontella* Dana and one of *Labidocera* Lubbock were found during studies on an extensive collection of plankton samples from the Gulf of Mexico and a small number from the Cape Hatteras region. The plankton tows were made by the vessels ALASKA, ALBATROSS, and FISH HAWK, operating under the supervision of the U. S. Fish and Wildlife Service and its predecessors, the U. S. Commission of Fish and Fisheries and the U. S. Bureau of Fisheries, respectively. The ALBATROSS and the FISH HAWK were engaged in early oceanographic and fishery exploration cruises in the Gulf of Mexico and off Cape Hatteras, whereas the ALASKA recently conducted an oceanographic and biological survey of the Gulf of Mexico.

Notes on the distribution of other species of the two genera found in these collections are presented following the description of the new species. The cruise patterns of the ALASKA, which provided the majority of the records, are available in the Reports of the Texas A. and M. Research Foundation (1952, 1955).

FAMILY PONTELLIDAE

PONTELLA DANA, 1846

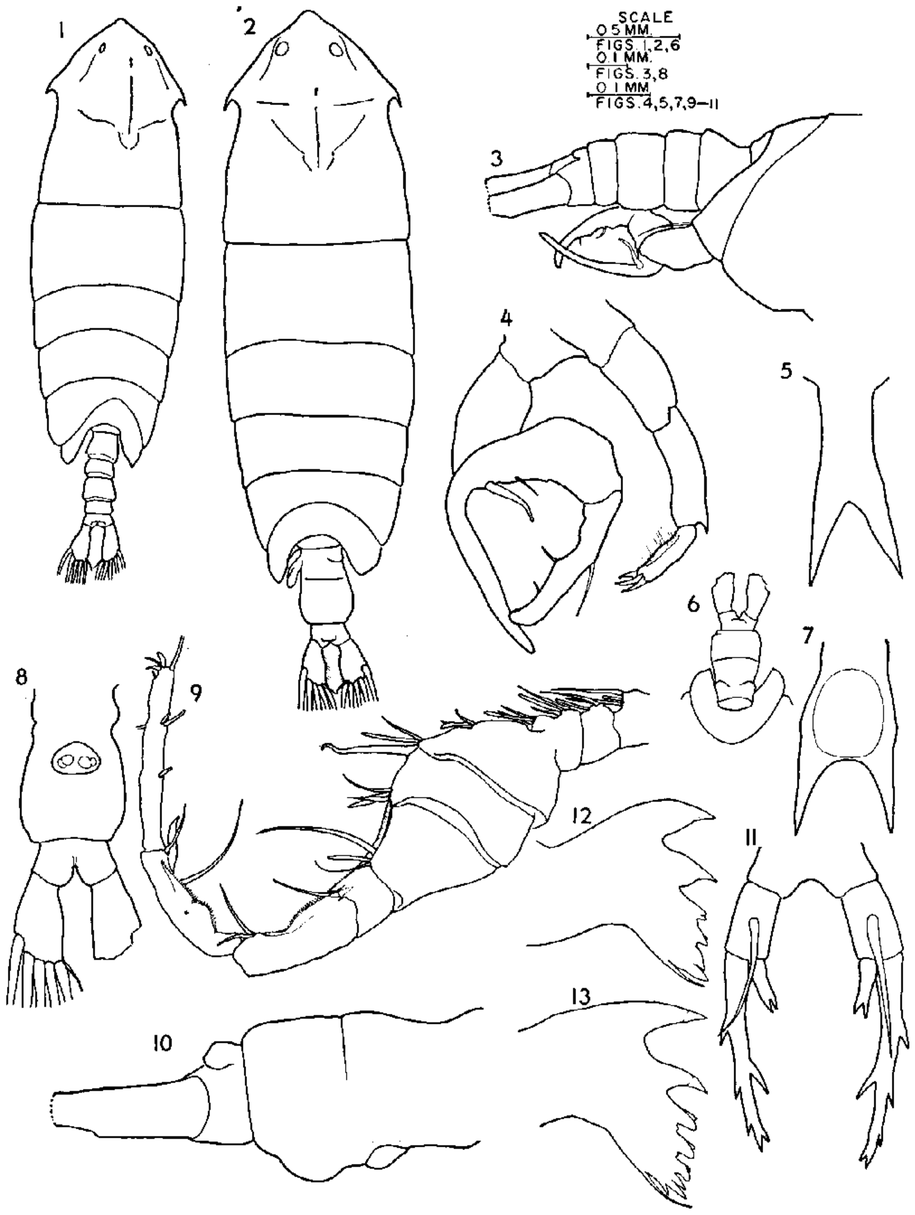
PONTELLA **MIMOCERAMI,**[1] sp. nov.

(Figures 1-13)

Localities, Material.—Key West (ALBATROSS, station number and collecting data not available, 1884, 55 males and females; sample taken between April 15-27 or May 7-10 in Key West Harbor according to Townsend's 1901 account of ship's activities; — FISH HAWK, station 7794, 26 December 1912, surface tow, one female). Coastal waters off Galveston, Texas (collected by writer in surface tows, 4 and 17 August 1954, two males). One mile southeast of Port Aransas (collected by Mr. R. J. Kemp, Texas Game and Fish Commission, in surface tow, 18 August 1956, one male). Lat. 34° 20′ N., long. 75° 50′ W., near Lookout Lightship off North Carolina (FISH HAWK, no station number, 3 September 1914, surface tow, one male, one female).

Measurements.—All measurements made from dorsal view; cephalothorax measured along midsagittal plane from anteriormost margin of forehead to posterior margin of intersegmental fold between

[1] The name *mimocerami* refers to the close relationship between the new species and *P. cerami* Scott.



Figures 1-13. *Pontella mimocerami,* sp. nov.: **1.** male, dorsal view; **2.** female, dorsal view; **3.** male abdomen, lateral view; **4.** male, fifth legs; **5.** female, rostrum; **6.** Female, abdomen, dorsal view; **7.** male, rostrum; **8.** female, abdomen, ventral view; **9.** male, geniculate antenna (less proximal segments); **10.** female, abdomen, lateral view; **11.** female, fifth legs; **12.** mandibular dentition.

Pontella tenuiremis Giesbrecht: **13.** mandibular dentition.

All figures drawn with aid of camera lucida; fig. 2 of holotype, remaining figures, except fig. 13, of paratypes.

thoracic segment V and genital segment; length of abdomen from anterior margin of genital segment to articulation between fifth innermost seta and right furcal ramus. Measurements made at 100x magnification with aid of ocular micrometer; specimen immersed in aqueous solution of 50% glycerine; slender glass rods used to support cephalothorax and abdomen in horizontal position. Measurements include total length (TL) and cephalothorax-abdomen length ratio (CAR).

1. *Adult female:* ALBATROSS; 10 specimens selected at random, TL range 3.18-3.63 mm, mean with standard error 3.29 ± .052 mm, standard deviation 0.156 mm, CAR range 3.5-4.2:1, mean 3.7:1. FISH HAWK, station 7794; TL 3.46 mm, CAR 3.9:1. FISH HAWK, Lookout Lightship; TL 3.40 mm, CAR 4.0:1.
2. *Adult male:* ALBATROSS; 10 specimens selected at random, TL range 2.70-3.18 mm, mean with standard error 2.95 ± .046 mm, standard deviation 0.138 mm, CAR range 2.9-3.5:1, mean 3.3:1. Galveston; two specimens, TL 2.98 mm, CAR 3.7:1; TL 2.46 mm, CAR 3.8:1. FISH HAWK, Lookout Lightship; TL 2.98 mm, CAR 3.6:1.

Diagnosis.—A population inhabiting coastal waters of the Gulf of Mexico and the temperate western North Atlantic Ocean in which the male is close to *P. cerami* Scott and the female is similar to *P. tenuiremis* Giesbrecht.

Adult female: Differs from *tenuiremis* chiefly in details of abdomen, fifth legs, and dentition of mandibular gnathal lobe.

Abdomen with genital segment partially separated from following segment by faint, incomplete suture (figs. 2, 6, 10). Anterior portion of genital segment with latero-dorsal swellings; swelling of left side enlarged in holotype, extending laterad in two lobiform processes (fig. 2); swelling of left side often a single reduced lobe similar to unilobed swelling on right side (fig. 6). Compound genital segment with greatest width posterior to suture, postero-ventral portion with moderate, rounded swelling (fig. 10). Anal segment narrower than preceding segment. Furcal rami normal, not attenuated, about one and one half times longer than maximum width (fig. 8).

Fifth legs (fig. 11) with exopodite bearing total of six spiniform processes, one medial, two terminal, three lateral; all excepting medial process reduced and somewhat equal in length; medial process about twice as long as others. Endopodite typically with bifid apex, bifurcation occasionally lacking; ramus not fused with basal segment 2.

Mandibular gnathal lobe with six teeth, fifth dorsalmost tooth monocuspidate (fig. 12); in *tenuiremis* gnathal lobe with eight teeth, fifth dorsalmost tooth bicuspidate (fig. 13).

Adult male: Differs from *cerami* with respect to thoracic segment V, geniculate antenna, and fifth legs.

Thoracic segment V with terminal portions in both dorsal and

lateral views not truncate (figs. 1, 3); processes in dorsal view extending posteriad in triangular lappet somewhat rounded near apex, terminating in reduced spiniform apex.

Segment 17 of geniculate antenna with elongated ridge appressed to segment 16; proximal portion of ridge with low widely-spaced denticles, distal portion with closely-spaced spiniform denticles. Ridge of segment 18 with proximal denticles of uniform size. Proximal ridge of fusion segment 19-21 with single row of denticles. Segments 22-25 perfectly fused (fig. 9).

Chela of fifth legs (fig. 4) slightly different from that in *cerami* (vide Scott 1909: pl. 53, fig. 15); distal segment with blunt apex, irregular margins, and not arcate; proximal segment with small spine medial to large spine.

Types (cf. Localities, Materials).—All deposited in USNM. Female holotype, no. 99193, selected from material of ALBATROSS, Key West station. Paratypes: nos. 99194-99196, 99203.

Further Description.—Female: rostrum lacking distinct lens (fig. 5); first antennae with 24 segments; second antennae with endopodal segment 1 separated from basal segment 2; remaining appendages as in genus. *Male:* rostral lens weakly to moderately defined; length of rostral processes about equal to diameter of lens (fig. 7).

Remarks.—Although the new species closely resembles the Indo-West Pacific species, *cerami,* this relationship is evident at present only in the male since the female of *cerami* is undescribed. However, the female of *mimocerami* appears to be similar to the following predominantly Indo-Pacific species of *Pontella,* as described by Giesbrecht (1892: pls. 24, 40): *tenuiremis; chierchiae* Giesbrecht; *fera* Dana.

The new species is distinguished in the male from the four species mentioned above by the following combined characteristics: (1) presence of an elongated, appressed, denticulated ridge on segment 17 of the geniculate antenna, the ridge completely overlapping the anterior margin of the preceding segment; (2) absence of lamellar or triangular processes extending from the proximal segment of the chela; (3) triangular non-truncated condition of the terminal portions of thoracic segment V. In the female it can be separated by (1) the single medial spiniform process on the exopodite of the fifth legs, (2) the pair of lateral swellings on the antero-dorsal portion of the genital segment, (3) the ventral swelling posterior to the genital orifice, and (4) the simple, almost symmetrical, terminal portions of segment V.

PONTELLA **POLYDACTYLA,**[2] sp. nov.

(Figures 14-24)

Localities, Materials.—Key West (ALBATROSS, same tow listed under preceding species, 16 males and females).

[2] The name *polydactyla* refers to the many processes on the rami of the female's fifth legs.

Measurements.—All measurements made from right lateral view along imaginary straight line between limits; length of cephalothorax from anteriormost limit of forehead to posterior margin of intersegmental fold between thoracic segment V and genital segment; length of abdomen from antero-dorsal margin of genital segment to distalmost margin of right furcal ramus. Otherwise, as already given under preceding species.

1. *Adult female:* 10 specimens; TL range 3.43-4.03 mm, mean with standard error 3.73 ± .062 mm, standard deviation 0.18 mm, CAR range 3.3-3.9:1, mean 3.5:1.
2. *Adult male:* 6 specimens; TL 3.64 mm, CAR 3.5:1; TL 3.76 mm, CAR 3.6:1; TL 3.85 mm, CAR 3.2:1; TL 3.75 mm, CAR 3.6:1; TL 3.54 mm, CAR 3.8:1; TL 3.71 mm, CAR 3.3:1.

Diagnosis.—A robust species closely related to and strongly resembling *P. lobiancoi* (Canu) in dorsal view.

Adult female: Differs from *lobiancoi* primarily in details of thoracic segment V, abdomen, and fifth legs.

Posterior portions of thoracic segment V asymmetrical in dorsal view; right side triangular, left side truncate, each side with terminal styliform process extending posteriad beyond genital segment (figs. 14, 18).

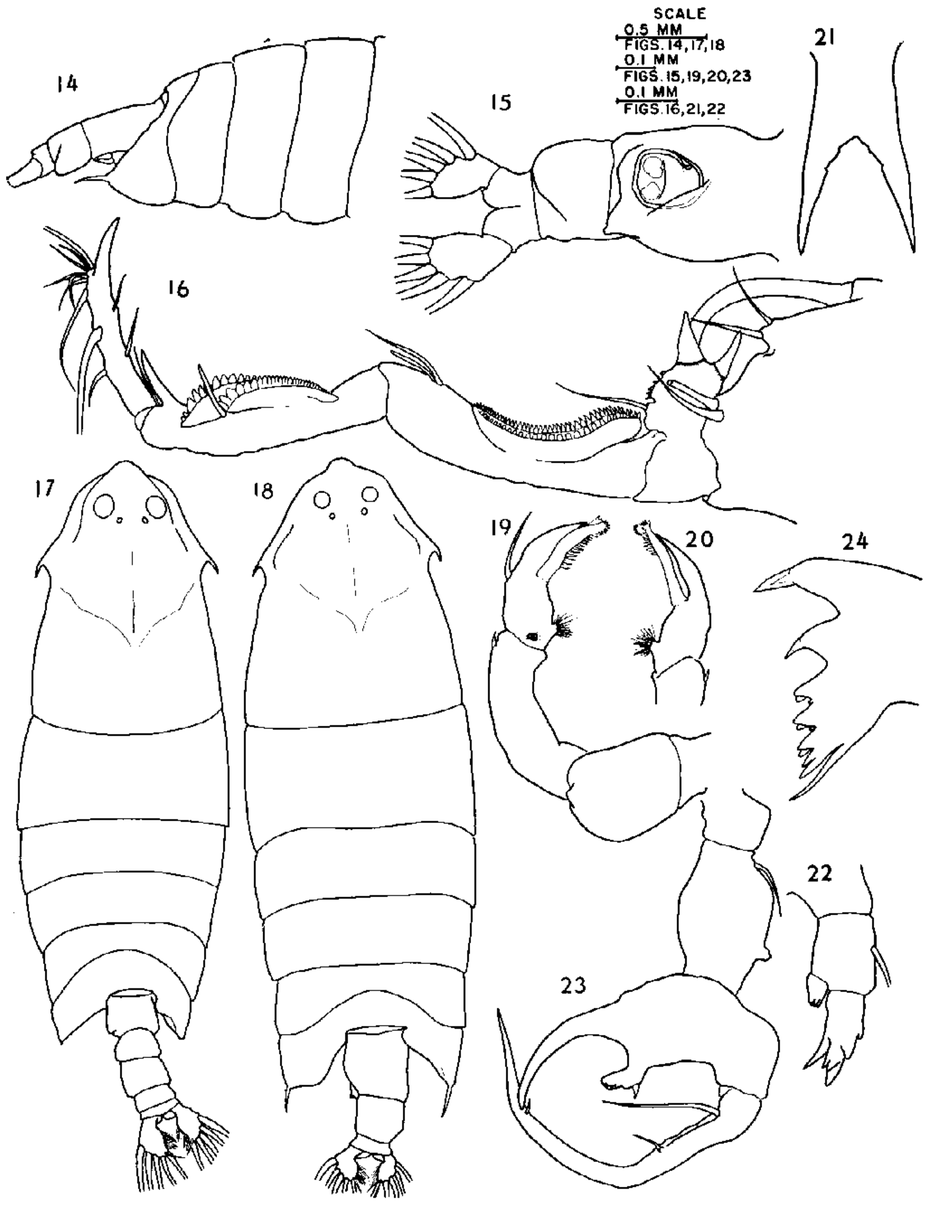
Abdomen with three visible segments as in *lobiancoi.* Genital segment with short ventral process posterior and to left of genital orifice (figs. 15, 18); segment lacking postero-dorsal swelling. Second abdominal segment asymmetrical, right postero-ventral portion bearing a conspicuous swelling (figs. 14, 15); segment's ventral surface smooth, lacking lobules and papillae. Furcal rami in dorsal view somewhat axiniform rather than rectangular.

Fifth legs with short thick rami; exopodite about as long as preceding segment, endopodite about as wide as long (fig. 22). Distal half of exopodite bearing six blunt spiniform processes, four distalmost overlapping. Endopodite terminating in two opposing pairs of short rounded processes.

Adult male: Differs from *lobiancoi* chiefly in details of geniculate antenna and fifth legs.

Geniculate antenna with segment 17 produced anteriad in robust irregular ridge; ridge armed with two, occasionally three, strong spines on proximal half, about six denticles on distal half. Ridge of segment 18 short, not reaching distal setae; denticles of ridge appear to be arranged in two rows, dorsal row with acuminate denticles, ventral row with lamelliform denticles. Two overlapping ridges of fusion segment 19-21 with robust denticles. Fusion segments 19-21 and 22-25 each terminating in a falcate spur (fig. 16).

Terminal segment of left fifth leg with acuminate apex flanked by two elongated lamellae; lamellae with unequal number of spinules on outer margin, unequal number of serrations on distal margin (figs. 19, 20). Chela of right fifth leg with distal segment extending be-



Figures 14-24. *Pontella polydactyla,* sp. nov.: **14.** female, lateral view (less cephalon, thoracic segment I); **15.** female, abdomen, ventral view; **16.** male, geniculate antenna (less proximal segments); **17.** male, dorsal view; **18.** female, dorsal view; **19.** male, left fifth leg, anterior view; **20.** terminal segment of male left fifth leg, posterior view; **21.** female, rostrum; **22.** female, fifth leg; **23.** male, right fifth leg, anterior view; **24.** mandibular dentition.

All figures drawn with aid of camera lucida; figs. 15 and 22 of holotype, remaining figures of paratypes.

yond falcate thumb of proximal segment; proximal segment with a somewhat digitiform process at midlength bearing one short medial spine (fig. 23).

Types (cf. Localities, Material).—All types deposited in USNM. Female holotype, no. 99213, selected from material of ALBATROSS, Key West; paratypes, nos. 99214, 99215.

Further Description.—Both sexes with rostrum lacking distinct lens (fig. 21). Forehead with pair of low rounded swellings just posteromediad to dorsal subcuticular lenses (figs. 17, 18). First antennae except male geniculate antenna with 24 segments; in female antennae extending to anterior margin of thoracic segment V. Second antennae with first segment of exopodite incompletely separated from second basal segment; in female exopodite shorter than first segment of endopodite. Second basal segment of leg 4 lacking distal seta. Male in lateral view with terminal portion of thoracic segment V bearing a short spiniform process on left side, lacking on right side. Remaining appendages as in genus.

Mated females with external lamelliform ornamentation, associated with spermatophore, enveloping genital segment; dorsal lamella with rectangular outline in dorsal view, covering dorsal surface of genital segment and overlapping right half of thoracic segment V; lateral lamellae fused with dorsal lamella, line of fusion sharp-edged; lateral lamellae extending mediad, overlapping ventral surface of genital segment.

Remarks.—The new species is easily distinguished from all other known species of the genus in the female by the four-pronged endopodite of the fifth legs and the elongated styliform processes terminating thoracic segment V; in the male by the unusual form of the ridge and spines on segment 17 of the geniculate antenna and the pair of serrated lamellae on either side of the distal segment of the left fifth leg.

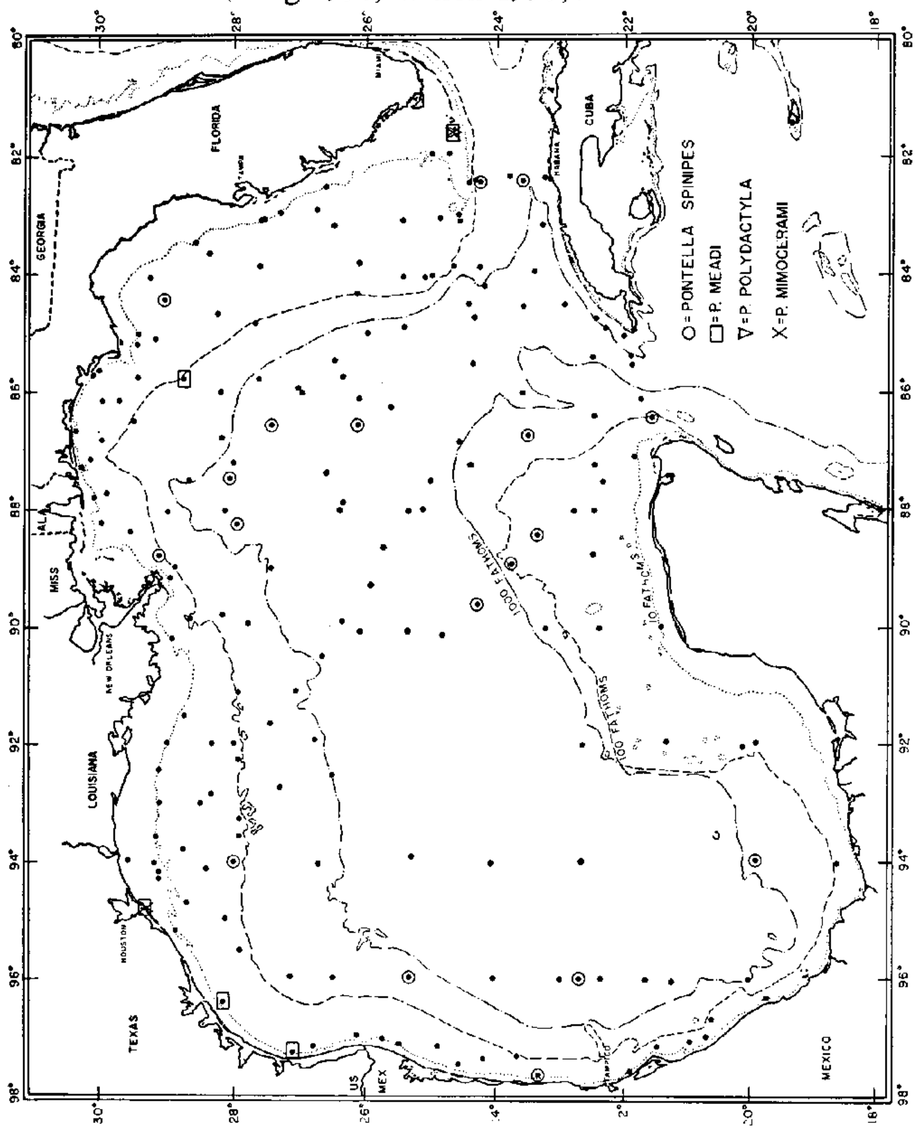
The similarity between *lobiancoi* and the new species compels reconsideration of the former's records from the Gulf of Mexico and the western Atlantic reported by Wilson (1932, 1942, 1950) and by King (1950). Except for these records, *lobiancoi* is known to occur only in the Mediterranean Sea and in Western European waters, Wimereux (Pas-de-Calais) being the type locality. It is noteworthy that this species was absent in the more than 200 samples collected by the ALASKA in the Gulf of Mexico. Considering the conspicuous, although superficial, resemblance between the two species and the usual occurrence of *lobiancoi* only in western European neritic waters, it seems best to regard Wilson's and King's records with reserve.

The Species of *Pontella* in the Gulf of Mexico

A qualitative analysis of more than 200 plankton samples collected by the ALASKA at surface stations scattered throughout the Gulf of Mexico revealed two known species of *Pontella, meadi* Wheeler and *spinipes* Giesbrecht, in addition to those described above. Geograph-

ical records of *Pontella* obtained during the present study are presented in Map 1.

P. meadi occurred at six widely scattered neritic localities over the northern shelf between the Florida Keys and Port Isabel. In addition, *P. pennata* Wilson was found together with *meadi* at all but one locality. The latter is not listed separately since there is considerable evidence (unpublished) that *pennata* is synonymous under *meadi,* a detailed account of this synonomy will be presented in a later paper. Previous records of *meadi* in the Gulf list the species from waters off western Florida (King 1950, Wilson 1950).



Map 1. Records of species of the genus *Pontella* collected by the M/V ALASKA in the Gulf of Mexico between April 1951-June 1953. Dots represent stations occupied by ALASKA.

P. spinipes appeared to be the most widespread species of the genus in the Gulf. It was found in 18 samples, occurring most frequently at stations made in slope and oceanic waters. Although there are no previously published Gulf records of *spinipes,* Jones (1952) has listed it from the Florida Straits region. According to T. E. Bowman (personal communication, 1955) the species has also been observed at Dry Tortugas and in the Caribbean Sea. Moreover, I have found *spinipes* together with *P. securifer* Brady in samples taken by the F. W. S. M/V OREGON just south of eastern Cuba (unpublished).

Two other species of *Pontella* are purported to occur in the Gulf of Mexico. *P. atlantica* (Milne-Edwards) is questionably reported by Davis (1950), the determination based on a juvenile specimen taken off Rock Island, Florida. In addition, as already mentioned above, Wilson (1950) and King (1950) have listed *lobiancoi* from western Florida waters.

LABIDOCERA LUBBOCK, 1853

LABIDOCERA **MIRABILIS,**[3] sp. nov.

(Figures 25-37)

Localities, Material.—Florida Keys: lat. 24° 43′ N., long. 81° 57′ W. (ALASKA, cruise 11, station 14, 5 June 1953, 10 m. depth of plankton tow); Key West (ALBATROSS, same tow listed under two preceding species); Knight's Key (FISH HAWK, station 7788, 19 December 1912, depth ?); Dry Tortugas (FISH HAWK, station 7794, 24 December 1912, depth ?). Total of 55 specimens including males, females, and immature copepodites found in above samples.

Measurements.—All measurements made at 32x magnification from right lateral view, using methods described above under *Pontella polydactyla.*

1. *Adult female:* 11 specimens selected at random, TL range 2.54-2.95 mm, mean with standard error 2.80 ± .034 mm, standard deviation 0.109 mm, CAR range 3.5-4.2:1, mean 3.8:1.
2. *Adult male:* 18 specimens selected at random, TL range 2.21-2.54 mm, mean with standard error 2.37 ± .026 mm, standard deviation 0.111 mm, CAR range 4.4-5.5:1, mean 5.1:1.

Diagnosis.—A distinctive species of moderate size from the Florida Keys region that resembles *L. detruncata* (Dana).

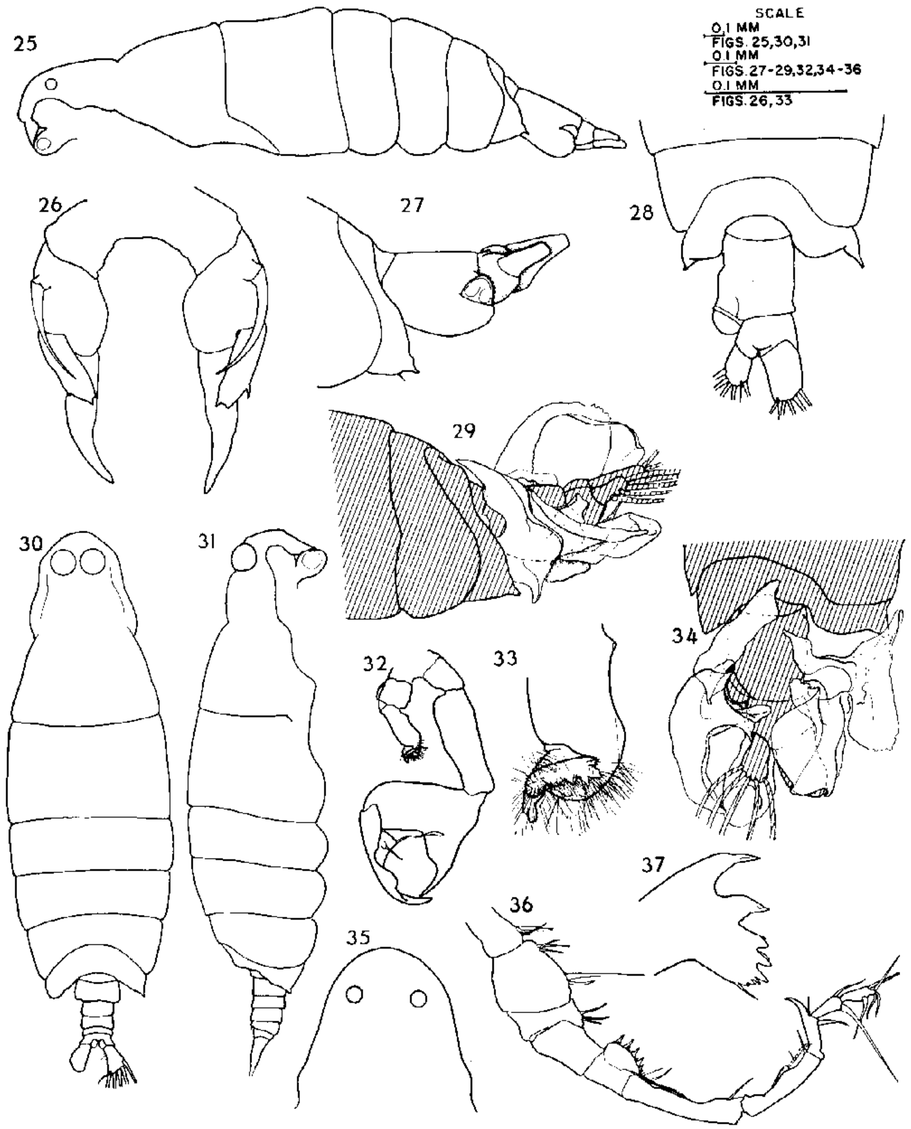
Adult female: Differs from *detruncata* primarily in details of thoracic segment V, abdomen, and fifth legs.

Thoracic segment IV separated from segment V; terminal portions of V asymmetrical, right side extending farther laterad than left side and bearing larger spiniform process (fig. 28).

Abdomen with two segments. Genital segment asymmetrical, bear-

[3] The name *mirabilis* refers to the unique length relationship between the exopodite and endopodite of the female's fifth legs.

ing swelling on left side extending postero-laterad; genital orifice situated on postero-dorsal portion of swelling (figs. 27, 28). Anal segment not reduced. Furcal rami asymmetrical, right ramus longer



Figures 25-37. *Labidocera mirabilis,* sp. nov.: **25.** female, lateral view; **26.** female, fifth legs; **27.** female, abdomen, lateral view; **28.** female abdomen, dorsal view; **29.** female, abdomen with spermatophore and ornamentation, lateral view; **30.** male, dorsal view; **31.** male, lateral view; **32.** male, fifth legs; **33.** male, left fifth leg, terminal segment; **34.** female, abdomen with spermatophore and ornamentation, dorsal view; **35.** female, forehead, dorsal view; **36.** male, geniculate antenna (less proximal segments); **37.** mandibular dentition.

All figures drawn with aid of camera lucida; figs. 25, 26, 29, 34, 35 of holotype, remaining figures of paratypes.

and broader than left (fig. 28).

Fifth legs differ from those of all known species of *Labidocera;* endopodite longer than exopodite, ratio of former to latter about 1.8:1 (fig. 26). Exopodite with total of three shore spiniform processes, one lateral, two apical. Endopodite moderately constricted midway in length, distal half curving mediad.

Adult male: Differs from *detruncata* in details of thoracic segment V, geniculate antenna, and fifth legs.

Thoracic segment V asymmetrical, right side with short spiniform process, left side rounded (figs. 30, 31).

Geniculate antenna (fig. 36) with ridge on segment 17 produced in robust ovate lobe bearing two marginal rows of five to eight denticles; denticles of dorsal row robust, those of ventral row minute. Ridge of segment 18 short, terminating at approximate midlength of segment; ridge armed with about 25 short blunt denticles. Fusion segment 19-21 with two slightly overlapping ridges, each ridge bearing blunt closely-spaced denticles. Segment 22 with distal falcate spur.

Left fifth leg with short ramus superficially unisegmental; short distal segment hirsute, partially fused to proximal segment and extending laterad (fig. 32); distal segment with posterior ridge and short digitiform apex offset laterad; ridge with multilobed distal margin (fig. 33). Chela of right leg with more elongated proximal segment than that in *detruncata;* distal segment with proximal triangular process bearing two spines and distal low lamella (fig. 32).

Types (cf. Localities, Material).—All deposited in USNM. Female holotype, no 99207, selected from material of ALASKA, cruise 11, station 14. Paratypes: nos. 99208-99212.

Further Description.—First antennae in female with 24 segments. Second antennae with basal segment 2 fused with segment 1 of endopodite. Remaining cephalic and thoracic appendages as in genus.

Mated females with abdomen obscured by complex lamelliform ornamentation associated with spermatophore (figs. 29, 34); ornamentation with somewhat rectangular basal plate ventral to genital segment and bearing a short ventral process at each corner; basal plate also supporting lateral lamellae which extend dorsad; those of right side larger, anterior one curving laterad, posterior one curving mediad; left side with two smaller lamellae, anterior one extending mediad, posterior one extending laterad.

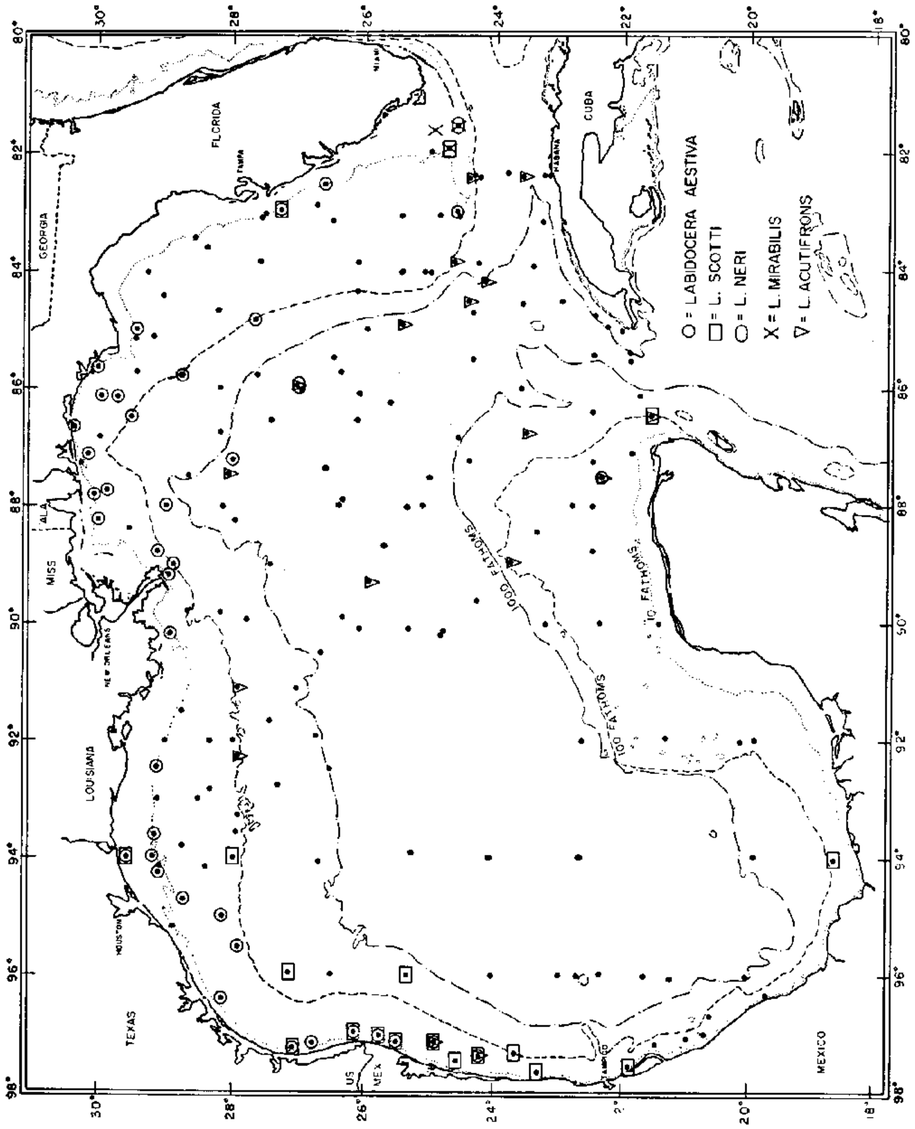
Remarks.—The new species is readily distinguished from all other known species of the genus. The female is best characterized by the fifth legs, in which the endopodite is almost twice the length of the exopodite, and by the asymmetrical genital segment, bearing the genital orifice latero-dorsad on a left lateral swelling.

In the male the left fifth leg and the geniculate antenna possess excellent diagnostic features. The left fifth leg is superficially unisegmental with the terminal portion hirsute and turned laterad in a short truncate process. With respect to the geniculate antenna, segment 17 bears two rows of five-eight spines each, the dorsal spines being more

than three times the size of the ventral spines, and segment 23 terminates in a robust falcate spur.

The Species of *Labidocera* in the Gulf of Mexico

In addition to *mirabilis,* four other species of the genus, *acutifrons* (Dana), *aestiva* Wheeler, *neri* (Krøyer), and *scotti* Giesbrecht, occur in the Gulf of Mexico. The local range of each of these species as determined from the ALASKA plankton collections is presented below (Map. 2).



Map 2. Records of the genus *Labidocera* collected by the M/V ALASKA in the Gulf of Mexico between April 1951-June 1953. Dots represent stations occupied by ALASKA.

L. acutifrons occurred at 13 oceanic localities east of long. 90° W., two oceanic localities south of Atchafalaya Bay, and two outer neritic localities off Laguna Madre. Included in this group are captures made in the mouth of the Yucatan Channel, in the vicinity of the Florida Keys, and off northern Cuba. Previous Gulf localities reported for the species are limited to the coastal waters off the southern half of Florida (King 1950).

L. aestiva, the most abundant species of Pontellidae in the collections, was confined almost exclusively to northern neritic waters between Florida and Laguna Madre. Numerically, the species was highly concentrated between Appalachicola Bay and the East Texas coast. Beyond these limits *aestiva* was taken in very small numbers, often only one or two specimens per standard tow.[4] A single specimen was also obtained from a tow made just off northern Yucatan. Both Davis (1950) and King (1950) have previously listed the species from the waters off western Florida.

L. neri was found at two localities, one in the vicinity of Key West and the other at about lat. 27° N., long. 86° W. The species has not been reported previously from the Gulf region.

L. scotti occurred at 17 ALASKA stations confined to or near neritic waters, including 14 coastal localities between the Lake Charles-Campeche area, one just off northeastern Yucatan, and two in coastal water off Florida, at Tampa and Key West, respectively. In addition, several records from Galveston, southern Florida, and the Florida Keys were established during the present study from collections by the ALBATROSS and the FISH HAWK as well as from material collected off Texas by the writer. The species was not found within the central portion of *aestiva's* range (Cape San Blas-Lake Charles). However, both species broadly overlap in the northeastern and northwestern sections of the Gulf. It is noteworthy that in the western overlap zone the number of *scotti* individuals per standard tow fell off gradually in the more northern samples. Conversely, *aestiva* showed a similar reduction in more southern tows with only single specimens per tow appearing in the Padre Island-Laguna Madre (Mexico) region.

Gradual displacement of *aestiva* by *scotti* also appears to occur proceeding south along the West Florida coast. The ALASKA material presents little evidence of a shift in the numbers of each species because of inadequate coverage of inshore areas in the region. However, Davis (1950) studying the plankton of the entire coast of western and southern Florida found *scotti* to be the most abundant and widespread species of *Labidocera* along the west coast. Around the southern tip of Florida, particularly within Biscayne Bay, extensive sampling both seasonally and geographically by two investigators (Davis 1950, Woodmansee 1949) have firmly established the year-

[4] A 30 minute horizontal tow at 1 meter depth with one half meter net, No. 10 mesh.

round presence of *scotti.* In contrast, *aestiva* was not found during these studies, nor did it occur in the inshore collections made in Florida Bay by Davis and Williams (1950).

At first glance, King's (1950) plankton survey of the entire west coast of Florida, in which *aestiva* and *acutifrons* are the only species of *Labidocera* listed, would appear to contradict Davis' results. However, *scotti* is not described or mentioned in the literature of those copepod specialists referred to by King as his source for specific identifications. Therefore, it is probable that King was unfamiliar with *scotti* and possibly confused it with *aestiva.*

It is interesting that the distributional patterns outlined by the available data on *aestiva* and *scotti* in the Gulf of Mexico conform closely with the two principle temperature zones of the region. Ekman (1953) and Hedgpeth (1953) have noted that with the exception of the southern half of both Texas and Florida the neritic waters off the Gulf states are characterized by warm temperature conditions ($>10°$ - ca. $25°$ C). For example, within the region in which *aestiva* predominates, the molluscan fauna is predominantly Carolinian (Rehder 1954) and *Crassostrea virginica* (Gmelin) occurs as a community dominant (Ekman 1953). The remaining neritic waters of the Gulf, with *scotti* the predominant species of the genus, apparently transcend from subtropical to tropical conditions (ca. $20°$ - $>25°$ C), culminating in the presence of coral reefs in the Tampico, Vera Cruz, Campeche, and Yucantan areas (Walton Smith 1954). Thus, in the Gulf the two species appear to be planktonic indicators of the two respective coastal water zones. Since they also fulfill adequately the physical requirements for planktonic indicator species (large size, singular appearance, high relative abundance, etc.), they should be subjected to more detailed study.

Apart from the Gulf, temperatures characteristic of the known range of each species are remarkably similar to conditions within the local Gulf range. *L. aestiva* is a well established inhabitant of temperate coastal waters between northern Florida and the Gulf of St. Lawrence (type locality: Woods Hole, Massachusetts). It has also been recorded from Brazilian coastal waters (Carvalho 1945, 1952; Oliveira 1946), but the existence of three other species in this area (*fluviatilus* Dahl, *darwini* Lubbock, *braziliense* Farran) that are very similar to *aestiva* casts some doubt on the validity of these reports. In contrast, *scotti* is known only from the tropical or near-tropical waters off the African west coast (type locality: Gulf of Guinea).

In summary, at least five species of the genus *Labidocera* are represented in the Gulf of Mexico. Regarding the three most abundant and widespread of these species, each appears to predominate in a different environmental area: *acutifrons* is found throughout the oceanic region, *aestiva* occurs along the northern temperate coastal area, and *scotti* is representative of the tropical or near-tropical coastal area.

Although, admittedly, data on *Pontella* in the Gulf of Mexico are sparse, the available information suggests that, as in *Labidocera,* the species tend to be environmentally separated as follows: *meadi*—warm-temperate neritic, *mimocerami*—tropical neritic, and *spinipes*—tropical oceanic. The remaining species, *P. polydactyla, L. neri* and *L. mirabilis,* appear to be infrequent transients in the easternmost portions of the Gulf region.

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ABSTRACT

Descriptions are presented for three new calanoid copepods taken in the Gulf of Mexico during plankton collecting operations of the U. S. Fish and Wildlife Service: *Pontella mimocerami*, n. sp., is related to *P. cerami* Scott; *P. polydactyla*, n. sp., is close to *P. lobiancoi* (Canu); *Labodocera mirabilis*, n. sp., resembles *L. detruncata* (Dana).

Records of previously known species of *Pontella* Dana and *Labidocera* Lubbock that appeared in the numerous plankton samples under consideration are charted. Their distributional patterns in the Gulf of Mexico are discussed. From the available evidence the more abundant and widespread of the species within each genus tend to be separated environmentally from one another. In *Labidocera*, *aestiva* Wheeler is temperate-neritic, *scotti* Giesbrecht is tropical-neritic, and *acutifrons* (Dana) is tropical-oceanic. In *Pontella*, *meadi* Wheeler is temperate-neritic, *mimocerami* is tropical-neritic, and *spinipes* Giesbrecht is tropical-oceanic. The remaining species, *Pontella polydactyla*, *Labidocera neri* (Krøyer), and *L. mirabilis* appear to be transients in the easternmost portions of the Gulf region.